EASTERN UNIVERSITY, SRI LANKA
THIRD EXAMINATION IN SCIENCE - 2007/2008
SECOND SEMESTER(December/January, 2008/2009)
ST 304 - DATA ANALYSIS
(SPECIAL REPEAT)

Answer all Questions **Time: Two hours**

Q1. The data below gives 15 measurements of two variables X and Y

X	23	24	26	25	30	24	23	22	29	24	25	28	22	22	24
Y	7.6	7.7	5.4	5.9	5.0	6.5	8.3	8.2	5.2	8.2	6.0	4.9	8.7	8.1	6.0

Using MINITAB,

(a) Draw a scatter diagram.

(b) Find the linear regression Y on X.

(c) Draw the fitted line on the graph in (a).

(d) Test the hypothesis that the slope of the regression line is zero.

(e) Print the fitted values and residuals.

(f) Test whether the model is simple linear regression or not.

(g) Draw the confidence band and fitted line in same graph without scatter diagram.

(h) Check the assumption of normality.

Q2. **Using MINITAB,**

(a) (i) Enter the four columns of the data in the format given below

Name	Height	Weight	Colour
Dennis	165	67	Blue
Stuart	172	68	Red
Richard	166	69	Green
Michael	164	68	Black
William	173	72	Green
Gareth	162	69	Red
Graham	177	64	Black
Leslie	162	67	Red
Tom	170	69	Red
John	169	68	Blue

(ii) Compute the proportion of individuals having weight higher than 67.

(iii) Obtain the names and corresponding height and weight values for the indi uals whose weight is higher than 68.

(iv) Rank the selected students according to weight values.

(v) Arrange the selected data according to the order of ranks.

(b) Let the scores assign to colours are as follows; Red 4, Blue 5, Green 9 and Blac

(i) Compute the total for each colour.

(ii) Sort the data (Names and Colours only) according to the score of colour.

Q3. Dates of two consecutive foreign visits of 5 officers in a government department is given below.

Officer	First visit	Second visit
1	9 May 1999	1 June 2000
2	13 November 1998	20 May 1999
3	10 January 1999	3 March 2000
4	25 June 1999	14 August 1999
5	19 December 1998	12 January 1999

If Rs.75 per day is charged for the period and the difference between two visits is less than 100 days, compute the total charge of all officers by **using SAS**.

Q4. (a) You have completed an experiment and recorded a subject ID, and marks for students A, B, and C. You want to compute average for students A, B, and C. But unfortunately, your lab technician, who didn't know **SAS** programming, arrange the data like this:

ID	Student	Marks
1	A	75
1	B	90
1	C	66
2	A	69
2	B	74
2	C	76
3	A	49
3	B	69
3	C	59

Write a **SAS** programme to read this data set and compute average marks for each student.

(b) The following are the rates of pay for samples of workers in three diffe types of companies.

Company A	Company B	Company C
2.30	2.67	3.45
2.13	3.42	2.12
4.12	3.00	1.22
2.45		2.45

write a **SAS** programme to construct the ANOVA table and test the hypothesis equal hourly rate of pay.